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NEW RECORDS OF *Pelicinus* AND *Xyphinus* FROM SRI LANKA (ARANEAE: OONOPIDAE)

U. G. S. L. Ranasinghe[1] and Suresh. P. Benjamin*
National Institute of Fundamental Studies, Hantana Road, Kandy, Sri Lanka
*Corresponding author: suresh.benjamin@gmail.com
[1]lakmalisanky@gmail.com

ABSTRACT

The two goblin spider genera (family Oonopidae), *Pelicinus* Simon, 1892 and *Xyphinus* Simon, 1893, are recorded for the first time in Sri Lanka. The two representative species *P. marmoratus* Simon, 1892 and *X. baehrae* Kranz-Baltensperger, 2014 are described and illustrated based on material from Sri Lanka.

Keywords: Oonopidae, *Pelicinus*, *Xyphinus*, Sri Lanka, Biodiversity

INTRODUCTION

Goblin spiders of the Family Oonopidae Simon, 1890 are a common component of the leaf litter dwelling biodiversity of tropical forests. Oonopidae is currently consisting of 1645 described species placed in 113 genera (World Spider Catalog, 2016). Currently, eight genera of goblin spiders have been reported in Sri Lanka: *Aprusia* Simon, 1893 (Grismado *et al*., 2011), *Brignolia* Dumitrescu & Georgescu, 1983 (Platnick *et al*., 2011; Ranasinghe & Benjamin, 2016a), *Camptoscaphiella* Caporiacco, 1934 (Baehr & Ubick, 2010), *Gamasomorpha* Karsch, 1881 (Eichenberger *et al*., 2012), *Ischnothyreus* Simon, 1893 (Kranz-Baltensperger, 2011), *Opopaea* Simon, 1892 (Platnick & Dupérré, 2009), *Orchestina* Simon, 1882 (Dalmas, 1916; Henrard & Jocqué, 2012) and *Xestaspis* Simon, 1884 (Eichenberger *et al*., 2012, Ranasinghe & Benjamin, 2016b). Here, we report two new genera in addition to the known eight genera mentioned above extending diversity of the family in the country.

MATERIAL AND METHODS

Specimens were collected by sifting litter and leaving the residue overnight in a Winkler extractor or by hand sorting the residue. The collected specimens were examined using an Olympus SZX7 stereomicroscope. Specimens were preserved in 70% ethanol. Preserved specimens were identified using recently published studies (Kranz-Baltensperger, 2014; Ott & Harvey, 2008; Platnick *et al*., 2012; Tong & Li, 2014). Specimen examination: Male palps were dissected and immersed in Kaiser's glycerol gelatin (Merck KGaA, Darmstadt, Germany), slide mounted, observed and illustrated with the aid of an Olympus BX51 compound microscope attached with a drawing tube. The female epigastric region was dissected and digested in a pancreatin solution (Álvarez-Padilla & Hormiga, 2008) for about 3–7 days. Slide mounted and illustrated. Digital images of the specimens were taken with a Leica MC170 HD camera mounted on a Leica M205C stereomicroscope using the software package Leica Application Suite, LAS version 4.6.2 (Leica Microsystems Limited, Switzerland). All measurements are given in millimeters. Non-type specimens are deposited in the NIFS.

Abbreviations: ALE, anterior lateral eyes; L, length; NIFS, National Institute of Fundamental Studies, Kandy, Sri Lanka; PLE, posterior lateral eyes; PME, posterior median eyes; W, width.

TAXONOMY
Pelicinus Simon, 1892
Pelicinus marmoratus Simon, 1892
(Figures 1–3)

Pelicinus marmoratus Simon, 1892c: 559, pl. 42, fig. 4.
Philesius marmoratus Simon, 1893: 303.
Myrmopopaea jacobsoni Reimoser, 1933: 397, figs. 1–3.
Gamasomorpha minima Berland, 1942: 5, fig. 1a.
Hytanis pusilla Bryant, 1942: 326, figs. 13–14.
Scaphiella ula Suman, 1965: 230, figs. 15–20.
Triaeris reticulatus Chickering, 1968: 354, figs. 6–13.
Triaeris pusillus Chickering, 1973: 228.
Silhouettella mahei Benoit, 1979: 205, fig. 6a.
Traieris reticulata Brignoli, 1983: 193.
Gamasomorpha gracilipes Wunderlich, 1987: 65, figs. 37–39.
Pelicinus mahei Saaristo, 2001: 321, figs. 40a–b, 41–46.
Pelicinus mahei Saaristo, 2010: 142, figs. 22.40–46.
Pelicinus marmoratus Platnick *et al.*, 2012: 18, figs. 1–60, 121–144.

Type material: Natural History Museum, London, England. Not examined.

Material examined: 1♂ (IFS_Oon_016), Sri Lanka, North Western Province, Puttalam District, Wanathavilluwa, 08º10’15”N, 79º52’30”E, 30m, 19 July 2010, leg. N. Athukorala, litter. 1♀ (IFS_Oon_017), same locality data.

Diagnosis: This species can be recognized by the weak scuta on the abdomen (Figure 1F), males with sail- shaped flange with embolus (Figure 3A) and female with a rounded posterior receptaculum followed anteriorly by a poreplate (Figure 3B, see Platnick *et al*., 2012).

Description: Male. Body length: 1.72 (Carapace, L: 0.72, W: 0.54. Abdomen, L: 1.00, W: 0.56). Coloration: carapace usually orange-yellow, sternum and mouthparts orange, abdominal scuta orange-yellow, abdominal inter scutal region white and covered with setae, legs pale orange, palps pale orange (Figure 1). Carapace broadly oval in dorsal view (Figure 1A), slightly elevated in lateral view (Figure 1B), surface and sides finely reticulate, lateral margin without denticles (Figures 1A, B). Clypeus: slightly rebordered, straight in front view. Chelicerae: straight, anterior face unmodified (Figure 1D). Eyes: six, well developed (Figure 1D), PME largest, all oval, ALE separate from edge of carapace by their radius or more, ALE separated by more than their diameter, ALE-PLE separated by less than ALE radius, PME touching throughout most of their length, PLE-PME separated by less than PME radius. Sternum: longer than wide, radial furrows in between coxae absent, surface smooth (Figure 1C). Abdomen: ovoid, with dark patches visible through dorsal scutum (Figure 1F), cover full length of abdomen, no soft tissue visible from above (Figure 1F). Booklung covers large, ovoid (Figure 1G). Postepigastric scutum long, rectangular, fused to epigastric scutum, without posteriorly directed lateral apodemes (Figure 1G). Posterior spiracles connected by groove (Figure 1G). Spinnerets scutum present as incomplete ring. Legs: spineless. Sperm pore: large, situated at level of anterior spiracular groove (Figure 1G).

Genitalia: Male palp of normal size, not strongly sclerotized, right and left palps symmetrical, trochanter normal size, unmodified, femur two or more times as long as trochanter, patella shorter than femur, tibia with three trichobothria. Cymbium yellow, narrow in dorsal view, not fused with bulb, bulb yellowish, 1 to 1.5 times as long as cymbium, stout, tapering apically, embolus, bears a sail-shaped expansion bordered proximally by a channel-shaped excavation, with basal projection (Figure 3A).

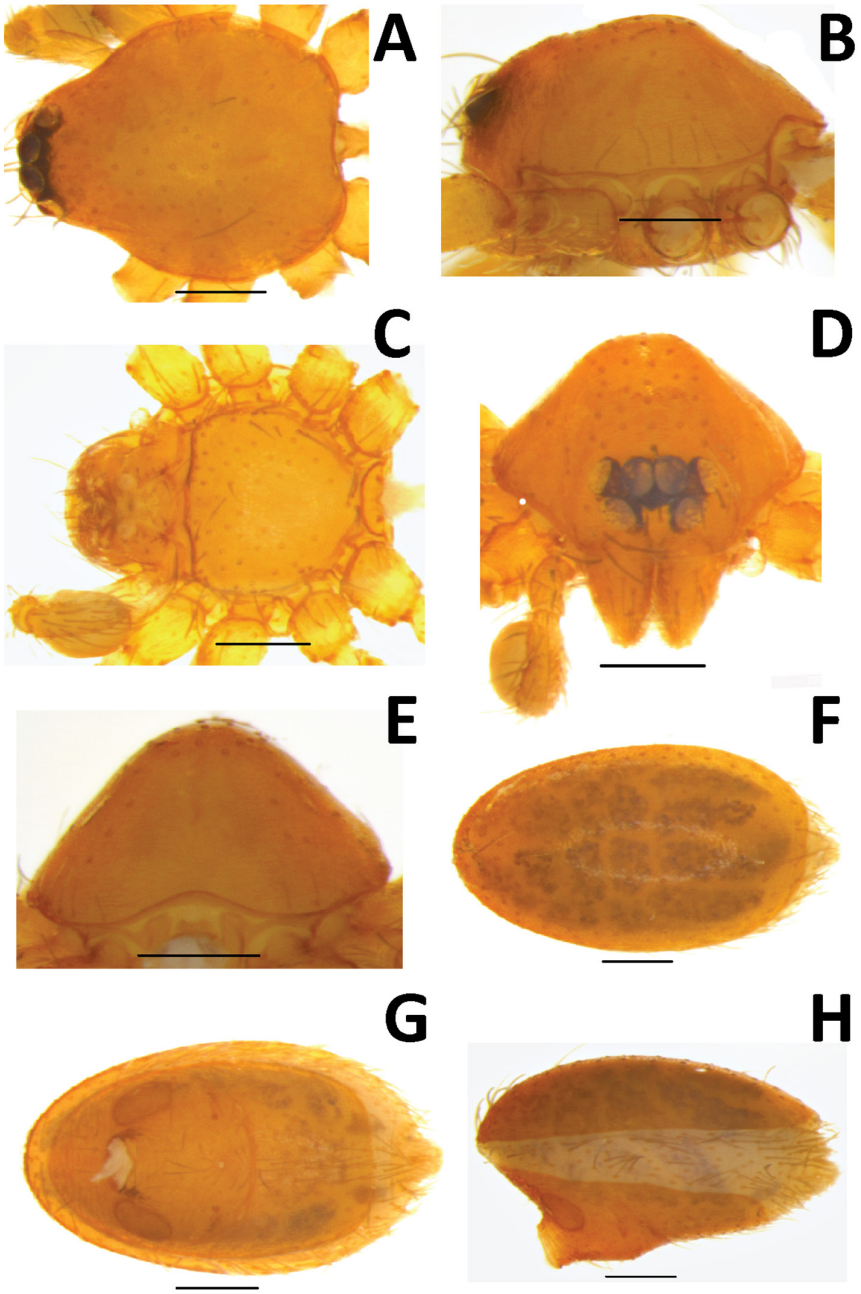

Figure 1 *Pelicinus marmoratus* Simon, 1892. Male from Puttalam, Wanathavilluwa.
A. Carapace, dorsal view; B. same, lateral view, C. same, ventral view; D. Same, anterior view; E. same, posterior view; F. Abdomen, dorsal view; G. same, ventral view; H. same, lateral view. Scale bars = 0.2 mm (A–H)

Female. Body length: 1.88 (Carapace, L: 0.72, W: 0.60. Abdomen, L: 1.16, W: 0.72). Somatic morphology as male except as noted. Sternum wider than long. Postepigastric scutum short, almost rectangular, covering about half of abdominal length (Figures 2A–B). Posterior receptaculum wide, bordered anteriorly by wide poreplate (Figure 3B).

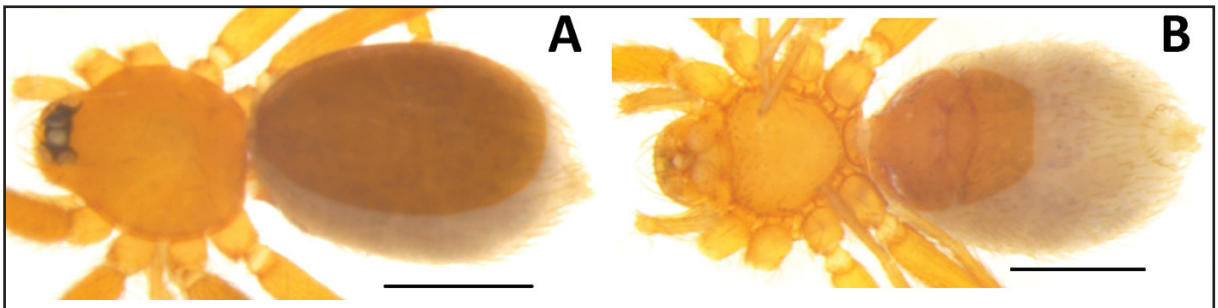

Figure 2 *Pelicinus marmoratus* Simon, 1892. Female from Puttalam, Wanathavilluwa.
A. habitus, dorsal view; B. same, ventral view. Scale bars = 0.5 mm (A–B)

Distribution: *Previous records:* Brazil, Indonesia, Kenya, Kiribati, Marshall island, Saint Vincent, Seychelles, Spain, Tonga, Turks and Caicos Island, USA and Virgin Island.
New record: Sri Lanka.

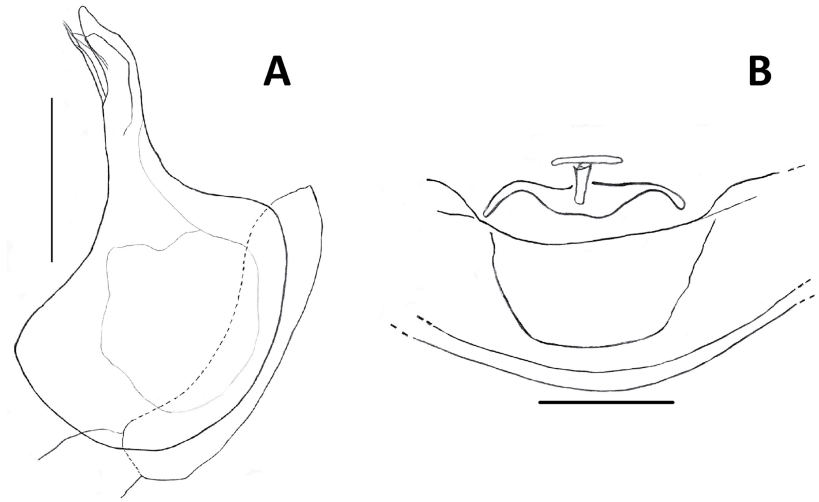

Figure 3 *Pelicinus marmoratus* Simon, 1892.
A. Male, Left palp, retrolateral view; B. Female, genitalia, dorsal view.
Scale bars = 0.1 mm (A–B)

Xyphinus Simon, 1893
Xyphinus baehrae Kranz-Baltensperger, 2014
(Figures 4–5)

Xyphinus baehrae Kranz-Baltensperger, 2014: figs. 57–60.

Type material. Not examined. Holotype. male (PBI_OON 00032630), Australia: Queensland, Mt. Molloy, 400m S 16º44'27", E 145º19'19", riparian/woodland, pitfall trap, summer 1992/1993, leg. S. Barnett, Queensland Museum.

Materials examined: 1♂ (IFS_Oon_280), Sri Lanka, Uva Province, Badulla District, environs of Kalupahana Village, pine forest, 820m, 6º44'58.5" N, 80º50'19.5"E, 02 January 2012, leg. S. P. Benjamin *et al.* litter.

Diagnosis: This species can be recognized by the reticulation of the carapace surface (Figure 4C), males with microsculpture of palpal palp and female with a sclerotized arch and short posteriorly directed apodemes (Figs. 58c, 59h in Kranz-Baltensperger, 2014).

Description: Male. Body length: 1.68 (Carapace, L: 0.74, W: 0.60. Abdomen, L: 0.94, W: 0.58). Coloration: carapace usually orange-brown, sternum and mouthparts orange, abdominal scuta orange-brown, abdominal inter scutal region white and covered with setae, legs pale orange, palps orange, end part brown-black (Figure 4). Carapace broadly oval in dorsal view (Figures 4A, C), strongly elevated in lateral view (Figure 4D), surface and sides strongly reticulate, lateral margin with sharply pointed denticles (Figures 4A, D). Clypeus: sinuous in frontal view (Figure 4D). Chelicerae: slightly divergent, promargin with microsculpture (Figure 4D). Eyes: six, well developed, ALE largest, all circular, ALE separate from edge of carapace by their diameter, ALE and ALE-PLE separate by less than ALE radius (Figure 4D). Sternum: longer than wide, radial furrows in between coxae absent, surface smooth (Figure 4B). Abdomen: ovoid, dorsal scutum strongly sclerotized, cover full length of abdomen, no soft tissue visible from above (Figure 4A). Booklung covers large, elliptical (Figure 4F). Scuto-pedicel region with paired, curved scutal ridges. Postepigastric scutum with short posteriorly directed lateral apodemes (Figure 4B). Posterior spiracles connected by groove. Spinnerets scutum present (Figure 4E). Legs: spineless. Sperm pore: large, situated at level of anterior spiracular groove (Figure 4B).

Genitalia: Male palp of normal size, not strongly sclerotized, right and left palps symmetrical, trochanter normal size, unmodified, femur two or more times as long as trochanter, patella about as long as femur, with microsculpture on prolateral surface. Tibia two times as long as patella, with three trichobothria. Cymbium pale orange, ovoid in dorsal view, not fused with bulb, with two elongated, dark setae (Figure 5A) bulb yellowish, two times as long as cymbium, with several dark, sclerotized apophyses and membranous outgrowths (Figure 5A).

Distribution: *Previous records*: Australia, Cambodia, India, Indonesia, Laos, Malaysia, Singapore and Thailand. *New record*: Sri Lanka.

SUMMARY

Ten genera of Oonopidae are now known from Sri Lanka. All together 30 species are reported, 26 of them are endemic (Eichenberger *et al.*, 2012; Grismado *et al*., 2011; Platnick *et al*., 2011; Ranasinghe & Benjamin, 2016 a,b).

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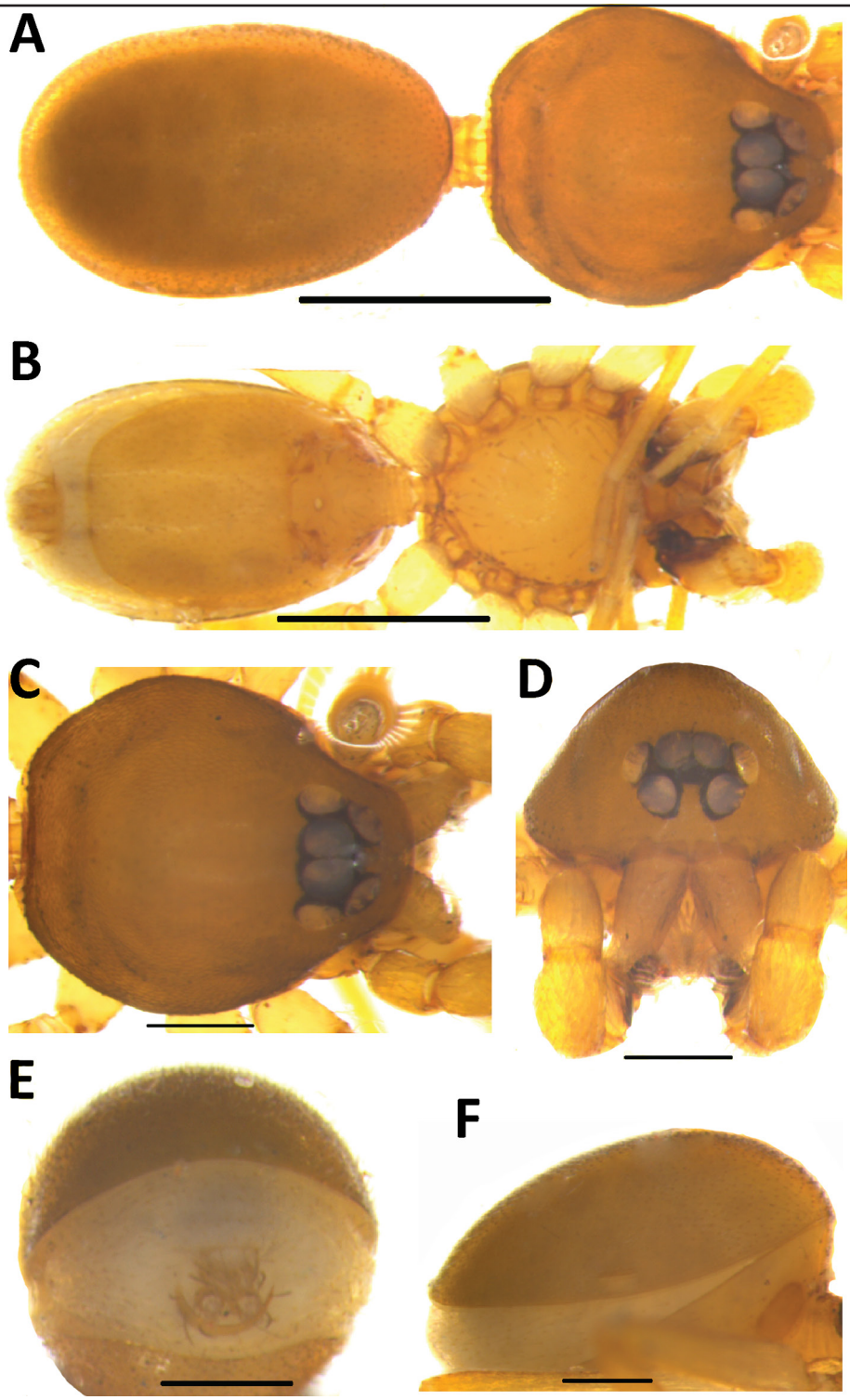

Figure 4 *Xyphinus baehrae* Kranz-Baltensperger, 2014. Male from Badulla, Kalupahana.
A. Habitus, Dorsal view; B. Same, Ventral view; C. Carapace, Dorsal view; D. Same, Anterior view ; E. Abdomen, Posterior view, F. Same, Lateral view. Scale bars = 0.5 mm (A–B), 0.2 mm (C–F).

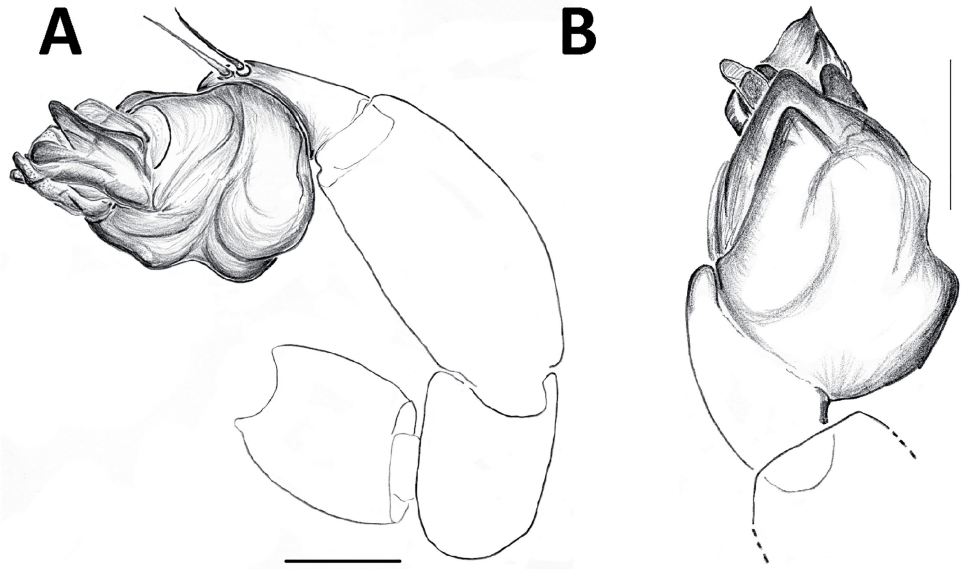

Figure 5 *Xyphinus baehrae* Kranz-Baltensperger, 2014. A. Male, Right palp, prolateral view; B. same, dorsal view. Scale bars = 0.1 mm (A–B).

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